Digital Communication 2018-19
Summative Assessment – Lempel-Ziv compression

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Deadline: 2019-02-15. Submission: DUO.

Your task is to analyse different properties of **Lempel-Ziv** coding (LZ77), including:

1. Running time of the encoder (compression);
2. Running time of the decoder (decompression);
3. Compression ratio (size of original file divided by size of compressed file);
4. Comparison with other compression techniques (taken off-the-shelf or coded by yourself).

Each of the four components above is worth **25 marks**. It is further broken down into:

1. Thoroughness of analysis (different window sizes, comparison between different input types and sizes, search for average/minimum/maximum running time, experiments run on different machines, etc.).
   (15 marks)
2. Clarity of report (conciseness, easy visualisation of data, clear conclusions drawn, etc.).
   (10 marks)

You must submit a short **report** (no more than **five** pages), accompanied by your **code** and its supporting **documentation**, electronically via DUO.

Notes.

1. Your code should be written in Java or Python, and your documentation must provide clear and precise instructions on how to run your program.
2. You may have to assign values or read data bit-by-bit; Java has some built-in bitwise operators for integers, while Python users may like the bitarray package for that purpose.
3. Your report must be a pdf file. Your documentation can be a plain text file or a pdf.